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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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03/29/2002

David Deleam

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EXAMINER

WOZNIAK, JAMES S

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

03/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/019,550

Applicant(s)

DELEAM ET AL.

Examiner

James S. Wozniak

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 9/7/2007, the applicant has submitted an amendment, filed 12/10/2007, arguing to traverse the art rejection based on the limitation regarding multiple thresholds relating to the filling level of a buffer and concatenation processing performed when the filling level lies between a second and third threshold (*Amendment, Pages 7-11*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.

Response to Arguments

2. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to **Claim 1**, the applicant argues that Shlomot et al I (*U.S. Patent: 5,699,481*) teaches the use of different thresholds dealing with voice activity detection and not buffer filling levels as is recited in the presently claimed invention (*Amendment, Pages 7-8*).¹ In response, the examiner notes that Shlomot I teaches first filling level processing performed on silence frames, as well as multiple buffer filling thresholds (*Col. 6, Line 13- Col. 7, Line 23*). Shlomot I also teaches a further filling level threshold when no silence frames are detected (*Col. 7, Lines 10-23*). The applicant contends that this level relates to voice activity detection

(*Amendment, Pages 7-8*). While this decision does involve voice activity detection, the filling level resulting from this decision is ultimately related to an amount of time frames in a buffer or a buffer filling level. More specifically, Shlomot I notes that “after a certain number of frames during which no silence frame is found” further action needs to be taken (*Col. 7, Lines 10-23*). Thus, it is noted that Shlomot I is teaching a specific number of time frames that fill a buffer (*i.e., buffer filling level*) when no silence frames are detected and calls for more critical processing involving non-silence frames as a result. Shlomot et al II (*U.S. Patent: 5,694,521*) provides a solution to clear out the buffer in this further filling level state, which one of ordinary skill in the art would recognize as being beneficial because it allows for faster playback of frames, without involving the deletion of importation speech frames (*Col. 4, Line 40- Col. 5, Line 14; and Shlomot I, Col. 7, Lines 10-23*). Thus, these arguments have been fully considered, but are not convincing.

Next, the applicant argues that the prior art of record fails to teach, similar to claim 1, the use of filling thresholds of a buffer that are of function of a length of time (*Amendment, Pages 8-9*). In response, the examiner notes that the filling threshold in Shlomot I relates to a number of *time* frames that changes a classification threshold (*Col. 7, Lines 10-23*). While these thresholds relate to voice activity detection, they are actually indicative of a buffer filling level that is measured in time frames because a certain number of frames continue to gather over time while the thresholds are set at initial levels. Thus, the buffer thresholds in Shlomot I are adaptive as a function of time.

On Pages 9-10 of the amendment, the applicant argues that the concatenation processing of Shlomot I is utilized in a different manner than in the present invention. In response, the

examiner notes that this processing is pointed out merely to illustrate that Shlomot I is aware of concatenation processing. Shlomot II, as is pointed out above, is relied upon to teach that such processing can actually be used for fast playback for the benefit of clearing out a buffer while retaining important speech data. Thus, these arguments, although fully considered, are not convincing.

On Pages 10-11 of the amendment, the applicant argues that Shlomot II does not necessarily relate to frame-based processing. In response, the examiner notes that Shlomot II teaches the combination of two speech segments of finite time periods through concatenation (*Col. 4, Line 40- Col. 5, Line 14*). While these periods are not restricted to be a frame length, they can be such a time period (*Col. 3, Lines 22-27*). Since Shlomot I teaches frame-based processing (*Col. 3, Line 67- Col. 4, Line 1*), one of ordinary skill in the art would recognize that the prior art combination teaches frame-based processing. Thus, these arguments have been fully considered, but are not convincing.

With respect to Claim 6, the applicant argues that Cohen et al (*U.S. Patent: 5,825,771*) fails to teach or suggest the “non-generation of a false frame...” (*Amendment, Page 13*). The notes, however, that Cohen teaches that artificial or “false frames” added for detected missing frames are deleted and not generated by a decoder (*Col. 9, Lines 21-25*). Thus, Cohen teaches the subject matter recited in claim 6.

The art rejection of claim 11 and the remainder of the dependent claims is traversed for reasons similar to claim 1. In regards to such arguments, see the response directed towards claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1 and 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*).

With respect to **Claim 1**, Shlomot (*US 5,699,481*) discloses:

A method of managing the decoding and playback of a sound signal in an asynchronous transmission system (*buffer management in an asynchronous coded speech packet transmission system, Col. 4, Lines 16-36*), comparing a filling level of a received sound signal with at least one threshold to detect any overabundance of the filling level of at least one of a first buffer memory and a second buffer memory at the inlet or outlet of a decoding block (*buffer at a decoder input, Fig. 1b, having various filling threshold levels (S, N, F), Col. 6, Lines 14-56*);

Implementing voice activity detection to eliminate non-active frames whenever the filling level lies between a first threshold and a second threshold (*deleting silence frames between slow and normal buffer levels, Col. 6, Lines 13- Col. 7, Line 23*); and

If the filling level lies between the second threshold and a third threshold, further processing is implemented on the frames (*further set of thresholds further process additional frames, Col. 7, Lines 10-23*).

Although Shlomot (*US 5,699,481*) contemplates additional frame processing based on a set of thresholds, Shlomot (*US 5,699,481*) does not specifically suggest that the further processing comprises concatenation processing used to compact two successive frames into a pseudo-frame having a reduction ratio greater than or equal to two, however Shlomot (*US 5,694,521*) recites a fast speech data playback method that compresses two consecutive speech segments into a single segment, irrespective of the segment content, by a ratio greater than or equal to 2 (*Col. 4, Line 40- Col. 5, Line 14*).

Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) are analogous art because they are from a similar field of endeavor in coded speech playback. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) with the segment compression means taught by Shlomot (*US 5,694,521*) in order to achieve faster high quality playback of received speech data (*Shlomot (US 5,694,521), Col. 1, Lines 57-64*), thus implementing a safeguard for more quickly clearing frames out of the buffer taught by Shlomot if a congestion occurrence persists (*Shlomot (US 5,699,481, Col. 7, Lines 10-23*).

With respect to **Claims 9-10**, Shlomot (*US 5,699,481*) discloses threshold adaptation based on an additional number of received time frames during a congestion period (*Col. 7, Lines 10-23*).

5. **Claims 4-6 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), and further in view of Cohen et al (*U.S. Patent: 5,825,771*).

With respect to **Claim 4**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) teach the method for buffer control as applied to Claim 1. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) do not teach that buffer control includes the detection of a missing or erroneous frame for fake frame generation, however Cohen recites a means for detecting and filling a frame gap resulting from a missing frame (*Col. 7, Line 66- Col. 8, Line 9*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), and Cohen are analogous art because they are from a similar field of endeavor in coded audio playback. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) with the means for detecting and filling a frame gap taught by Cohen in order to implement a means for missing packet compensation (*Cohen, Col. 6, Lines 55-61*).

With respect to **Claim 5**, Cohen further recites:

When the decoding block implements its decoding processing in cyclical manner relative to the content of the first buffer memory, detection of any missing or erroneous frame or of any absence of samples to play back is implemented at the same cyclical frequency, said detection taking place far enough in advance relative to the decoding process to make it possible to generate a fake frame (*detecting and decoding audio samples at a converting frequency, Col. 7, Line 57- Col. 8, Line 9*).

With respect to **Claim 6**, Cohen further recites:

A fake frame is not generated when a missing or erroneous frame is detected for a frame on which an absence of samples has already been detected (*removing artificial frames prior to generation at a decoder, Col. 9, Lines 21-25*).

Claim 11 contains subject matter similar to claim 1, and thus, is rejected for the same reasons. Shlomot (*US 5,699,481*) additionally recites speech playback at a speaker (*Col. 1, Lines 45-52*). Although well known in the art, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) do not specifically suggest the use of a playback buffer. Cohen, however, further discloses a playback buffer (*Fig. 2, Elements 15 A and B*) to ensure that an audio device always has a continuous stream to play (*Cohen, Col. 2, Lines 45-50*).

6. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), further in view of Cohen et al (*U.S. Patent: 5,825,771*), and further in view of Chan (*U.S. Patent: 5,897,613*).

With respect to **Claim 7**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) and further in view of Cohen teach the method for buffer control utilizing missing frame detection and correction as applied to Claim 4. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) and further in view of Cohen do not teach the use of a previously stored frame to determine the generation of a correction frame, however, Chan recites utilizing a previous frame to determine the generation of a repeated frame (*Col. 3, Lines 31-56; and Col. 5, Lines 25-30*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), Cohen, and Chan are analogous art because they are from a similar field of endeavor in coded audio playback. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) and further in view of Cohen with the concept of utilizing a previous frame to determine the generation of a repeated

frame taught by Chan in order to provide a means for constant data stream generation in the case of discontinuous transmission (*Chan, Col. 3, Lines 31-56*).

7. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), and further in view of Narayan (*U.S. Patent: 5,642,466*).

With respect to **Claim 8**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) teaches the method for buffer control utilizing speech segment combination as applied to Claim 1. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) do not teach the weighting scheme for combining speech segments as recited in claim 8, however Narayan discloses two weighting ramps that emphasize a beginning of a first speech segment and an ending of a second speech segment (*Col. 11, Line 20- Col. 12, Line 56; and Fig. 9*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), and Narayan are analogous art because they are from a similar field of endeavor in audio synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) with the emphasis means taught by Narayan in order to implement blending for discontinuity smoothing (*Narayan, Col. 11, Lines 22-30*).

8. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), and further in view of Pan et al (*U.S. Patent: 5,696,875*).

With respect to **Claim 12**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) teaches the method for buffer control utilizing speech segment combination as applied to Claim 1. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) do not teach averaging combined speech segments, however, Pan discloses a means for speech segment averaging (*Col. 4, Lines 32-54*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), and Narayan are analogous art because they are from a similar field of endeavor in audio synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) with the averaging means taught by Pan in order to achieve a smoother transition between successive speech segments (*Pan, Col. 4, Lines 32-54*).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Application/Control Number:
10/019,550
Art Unit: 2626

Page 11


however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
2/11/2008


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